



Exit Glacier Road Reconstruction — Kenai Fjords NP



The confluence of Exit Glacier and the Resurrection River in Kenai Fjords National Park.
Photo by Alberto Loyo/123RF

At the edge of the Kenai Peninsula lies a land where the ice age lingers. Located 128 miles southwest of Anchorage, Alaska, Kenai Fjords National Park (KEFJ) is accessible by car, bus, train, boat, and plane. Nearly 40 glaciers flow from the 714-square-mile Harding Icefield, the crowning feature of the Park.

Park visitors can drive to Exit Glacier, or take a tour bus. Exit Glacier is the only area of the park that visitors can access by motor vehicle, with just over a half-mile walk to a glacier viewpoint. Nearly 300,000 people visited Kenai Fjords National Park in 2011, and many of them chose to make the drive to Exit Glacier.

The 607,000-acre Kenai Fjords National Park was created in December 1980 through the Alaska National Interest Lands Act. That act directs in part that the Park “be managed...To maintain unimpaired the scenic and environmental integrity of the Harding Icefield, its outflowing glaciers, and coastal fjords and islands in their natural state...”

The road to Exit Glacier generally opens in May and closes with the first snowfall, usually in October. The average snowfall at Exit Glacier is 199.4 inches/year (506 cm/year); in 2011/12 the snowfall levels at Exit Glacier reached 243 inches (617 cm).

Mega-Project* Profile: Exit Glacier Road Reconstruction, Kenai Fjords NP

Estimated cost: \$20 million
(Class D Estimate)

Percentage of AKR's FLTP
Annual Allotment: 333%

Percentage of AKR's FLTP
Annual Allotment: 8.33%

The most popular and accessible area in Kenai Fjords National Park is Exit Glacier, which lies approximately 13 miles northwest of the small town of Seward, Alaska, home of the Park's headquarters. Exit Glacier was named in 1968 by the first successful mountaineering party to cross the Harding Icefield. Beginning in Homer, Alaska, they found this glacier at the north end of the Icefield to be the most convenient exit for their journey.

The Exit Glacier area is prone to re-occurring flooding. Like many glaciers lying within Kenai Fjords National Park, Exit Glacier is in retreat, and the melting ice flows into the Resurrection River.

At the confluence of the Resurrection River and the Exit Glacier, drainage has become destabilized in terms of flow patterns and frequency of flood events. Here, the road section crosses the natural alluvial delta and is subjected to periodic overflow. The slide fills the ditch line, erodes, and endangers the road with saturated mud.



Top: The approach road to Exit Glacier. NPS photo.

Middle: Flooding mitigation in October, 2012. NPS photo.

Bottom: Interim construction at Exit Glacier. NPS photo.

* Mega Projects: The NPS transportation system is supported, in part, by funds from the Federal Lands Transportation Program (FLTP). Currently, the NPS receives about \$250M/year from the FLTP. These funds are apportioned by formula among the seven NPS Regions. Most of these funds are used for "transportation asset management" – that is, to pay for the work required to keep existing assets in good condition. There are some projects, such as a major bridge repair or ship replacement, that require a much larger amount of funding than is available on an annual basis to the Region. These we call "Mega Projects." The NPS is trying to come up with a way to fund them.

The hydrological regime has always been dynamic due to the historical tendencies of a glacial outwash plain, but more recently the flooding has caused deterioration to the road profile, has inundated the few culverts that do exist under the road, and has required the closure of public access for brief periods of high flow.

The Kenai Fjords Park has implemented science-based decision-making to create a long-term mitigation or solution to this flooding, and has deployed an interim engineering solution to prevent the loss of the road.

To maintain both visitor access and the integrity of the road profile, this project will require a thorough evaluation of the hydrological data, recommendations for short-term solutions, and the preparation of design alternatives for a long-term solution that simultaneously ensures protection of the natural resources within the floodway and stabilization or enhancement of the roadway.

Initial consultation with Western Federal Lands Highway Division (WFLHD) has resulted in an interim treatment and full design analysis. Depending upon the recommendations, the project may be considered Category 4R, which would then require additional design evaluation and approval steps.

Today, shrinking glaciers within Kenai Fjords National Park bear witness to the effects of our changing climate. In recent years, climate change has impacted the park's resources due to the frequency and degree of natural processes evident in weathering, meteorological events, and glaciation. Designed responses to the challenge of the reoccurring flooding need to address anticipated changes; environmentally and financially sustainable solutions will be required.

Stabilization of the Exit Glacier road is imperative to maintaining safe access into the park for all visitors, NPS vehicles, and emergency traffic. Completing this project will reduce impacts to the natural processes of the Exit Creek and Resurrection River, alleviate damage to the riverbank and adjacent park road, minimize maintenance of the two-mile section of road to Exit Glacier, and reduce yearly costs associated with emergency maintenance measures to keep this popular road passable.

Exit Creek flood issues in 2011: flooded area in 7/26/2011 is in yellow; flooded area 8/04/2011 is in blue. Background is a 2003 Orthoimage. NPS diagram.

